

**Listing of Claims:**

1. (Original) A method for optimizing leaf comparisons from a tree search of data stored in external memory of an embedded processing system, the method comprising:  
  
    providing a control structure for leaf data comparisons as a control vector and a match key;  
  
    and  
  
    utilizing the control vector to direct types of comparison tests performed with the match key.
2. (Original) The method of claim 1 wherein the control vector further comprises a control setting for a chosen portion of the match key.
3. (Original) The method of claim 2 wherein the control setting further comprises a two-bit value.
4. (Original) The method of claim 2 further comprising providing the control structure in a fixed size block of memory.
5. (Original) The method of claim 4 further comprising allowing storage of additional data in the fixed size block of memory following the control structure.
6. (Original) The method of claim 2 wherein the control vector further comprises a control setting to indicate a masked compare test is needed.

7. (Original) The method of claim 6 wherein the match key further comprises a mask pattern and key value for the masked compare test.

8. (Original) The method of claim 2 wherein the control vector further comprises a control setting to indicate a range compare test is needed.

9. (Original) The method of claim 8 wherein the match key further comprises maximum and minimum values of a range for the range compare test.

10. (Original) An embedded processing system for optimizing leaf comparisons from a tree search, the embedded processing system comprising:

an embedded processor, the embedded processor including a tree search engine; and  
external memory coupled to the embedded processor, wherein the tree search engine performs comparisons on leaf data in the external memory according to a control structure comprising a control vector and match key in the leaf data.

11. (Original) The embedded processing system of claim 10 wherein the control vector further comprises a control setting for a chosen portion of the match key.

12. (Original) The embedded processing system of claim 11 wherein the control setting further comprises a two-bit value.

13. (Original) The embedded processing system of claim 10 wherein the external memory comprises fixed sized blocks for storing the control structure.

14. (Original) The embedded processing system of claim 13 wherein the external memory further stores additional data in the fixed size block of memory following the control structure.

15. (Original) The embedded processing system of claim 11 wherein the control vector further comprises a control setting to indicate a masked compare test is needed.

16. (Original) The embedded processing system of claim 15 wherein the match key further comprises a mask pattern and key value for the masked compare test.

17. (Original) The embedded processing system of claim 11 wherein the control vector further comprises a control setting to indicate a range compare test is needed.

18. (Original) The embedded processing system of claim 17 wherein the match key further comprises maximum and minimum values of a range for the range compare test.

19. (Original) A method for optimizing leaf comparisons of a tree search, the method comprising:

storing leaf data of a tree structure in external DRAM of an embedded processing system;

organizing the leaf data within fixed size blocks of memory in the external DRAM as a control vector and match key; and

utilizing the control vector and match key to direct comparisons done on the leaf data by a tree search engine of the embedded processing system.

20. (Original) The method of claim 19 wherein the control vector further comprises a control setting for a chosen portion of the match key.

21. (Original) The method of claim 20 wherein the control setting further comprises a two-bit value.

22. (Original) The method of claim 20 wherein the control vector further comprises a control setting to indicate a masked compare test is needed.

23. (Original) The method of claim 22 wherein the match key further comprises a mask pattern and key value for the masked compare test.

24. (Original) The method of claim 20 wherein the control vector further comprises a control setting to indicate a range compare test is needed

25. (Original) The method of claim 24 wherein the match key further comprises maximum and minimum values of a range for the range compare test.

26. (Original) A computer readable medium containing program instructions for optimizing leaf comparisons from a tree search of data stored in external memory of an embedded processing system, the program instructions comprising:

providing a control structure for leaf data comparisons as a control vector and a match key; and

utilizing the control vector to direct types of comparison tests performed with the match key.

27. (Original) A computer readable medium containing program instructions for optimizing leaf comparisons of a tree search, the program instructions comprising:

storing leaf data of a tree structure in external DRAM of an embedded processing system;

organizing the leaf data within fixed size blocks of memory in the external DRAM as a control vector and match key; and

utilizing the control vector and match key to direct comparisons done on the leaf data by a tree search engine of the embedded processing system. .